

YOUTH TOBACCO SURVEY IN MACAO

A COMPONENT OF THE GLOBAL YOUTH
TOBACCO SURVEY
2000-2001

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Executive Summary

Objectives: this report describes the knowledge, attitudes and behavior of young people regarding tobacco use, their exposure to environmental tobacco smoke (ETS), pro-tobacco as well as anti-tobacco advertisement.

Method: we conducted a multistage, school-based, two-cluster survey (n=2212, age=13-15 years) in government and private schools using a standardized questionnaire based on the Global Youth Tobacco Survey (GYTS).

Results: Smoking prevalence was 33.0% for boys and 23.4% for girls. One-third (33.6%) of never smokers and 45.8% of current smokers exposed to smoke from others in their home and more than 5 in 10 never smokers and almost 8 in 10 of current smokers exposed to smoke from others in public places. More than 50% of non-smokers and more than 57% of boys and girls saw a tobacco advertisement, and around 4.5 % of them were offered free cigarettes from a tobacco company representative. Moreover, almost 6 in 10 young people buy their cigarettes from stores, and 9 in ten were not refused to buy cigarettes because of their age.

Conclusion: One major problem in Macao that cannot be ignored is the increased use of cigarettes by young people, which will have long-term negative effects to the health care system in Macao. A small decline in smoking prevalence among youth could have a significant beneficial public health impact in reducing the number of adult smokers and consequently reducing morbidity and mortality caused by smoking related diseases in the future. Therefore, stronger intervention programs for community as well as adolescents and school-aged children should be established.

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Preface

The Global Youth Tobacco Survey (GYTS) is the first comprehensive and representative school-based study of youth smoking knowledge, attitudes and beliefs conducted in Macao SAR. This study, which was conducted by the Department of Health, used an internationally standardized instrument that facilitates comparing youth behavior regarding tobacco use at the regional as well as the international level.

Moreover, the study design, data collection and analysis were carried under the direct supervision of the Office on Smoking and Health - Centers for Disease Control and Prevention, United States of America (OSH/CDC) and the Tobacco Free Initiative Office – The Western Pacific Region Office of the World Health Organization (TFI/WPRO/WHO).

I. Introduction

1.1 Situation worldwide

Tobacco use is one of the main preventable causes of death in the world. The World Health Organization (WHO) attributes over 4 million deaths a year to tobacco¹, a figure that is expected to rise to 10 million deaths a year by 2030, with 70% of these deaths will be occurring in developing countries. Studies in the developed countries show that most people begin using tobacco before the age of 18 years^{2,3}. Recent trends indicate an earlier age of initiation and rising smoking prevalence rates among children and adolescents. If these patterns continue, tobacco will result in the deaths of 250 million children and adolescents alive today, many of them in the developing world⁴.

The international society, spearheaded by the Tobacco Free Initiative (TFI), World Health Organization (WHO), United Nations Children's Fund (UNICEF) and the Office On Smoking and Health (OSH), Centers for Disease Control and Prevention (CDC), has been developing international programs and initiatives to combat this man-made plague which is devastating the lives of millions of people worldwide. However, regardless of the world wide movement against tobacco, tobacco companies still control the tobacco

market. They produce over one trillion sticks, over a billion smokers and influence ever increasing people, especially the young to start smoking every year.

Despite the harm caused by smoking only modest success has been achieved in global tobacco control. It is clear that children and young people are now more at risk than ever before, and they should be the primary focus for intervention strategies.

1.2 Tobacco use in the Macao

In Macao, tobacco is not grown but traded. Tobacco was manufactured into cigarette and more than 50% of the tobacco imports are re-exported to neighboring countries. Smuggling remains a problem. At past, the tobacco industry played an important role in Macao economic in term of “Macao Grand Prix” (a famous car competition race held in Macao annually).

Manufactured cigarettes are the predominant form of tobacco consumed. Filter-tipped cigarettes comprise 97% and unfiltered cigarettes account for 2% of all tobacco products used. Other less frequently encountered tobacco products include “roll-your-own” tobacco and cigars or cigarillos.

In 1997, a regional antismoking law was established. Rules and regulations for tobacco use control were set up in the region to the following:

- Displaying a health warning, nicotine and tar contents on cigarette packs.
- Requiring health warnings on cigarette packet, which must occupy 20% of the whole surface of the cigarette packet.
- Restricting sales of cigarettes to those aged 18 and older.
- Banning advertising in the television, radio stations.
- Banning smoking in the public or private units, in which medical care is given, including the respective waiting rooms, ambulances, first-aid posts, clinics, other similar places and pharmacies;
- Banning smoking in the places for minors less than 18 year old, especially in the establishments for infant care, recreation centers for spare time, colonies for holidays and other congener us places or units;

- Banning smoking in the primary, secondary, technical-professional schools and institutions of higher education, and with regard to the last two cases, excepting the respective dining-halls or similar places;
- Banning smoking in the reception place of the governmental departments, the rooms of electronic games, enclosed sports spaces, cinemas, theatres and other show places in enclosed spaces, museums, libraries, auditoriums, public meeting rooms, reading rooms and room for expositions;
- Banning smoking in the port and airport installations, vehicles and ships that belong to the collective transport of passengers, taxis and elevators.

In addition, the Department of Health launched a smoking or health program in 1996, as well as World No Tobacco Day was commemorated annually by the Department of Health Day, educational and health promotional programs are mostly school-based, periodic public awareness campaigns for health regarding.

Accurate and representative prevalence data on tobacco use among children and young adults are not available. However, a family-based survey conducted in 1997 by Macao Health Department and consumer's council revealed the prevalence of overall tobacco use is 35.8 %, and 31.6% in male and 4.2% in female respectively. A survey for police and teachers conducted by Health Department in 1999, showed that 45.8% in police and 25.3% in teacher smoke or use tobacco, and males were more likely than female to use tobacco.

II. Goals and objectives

The GYTS is a school-based tobacco survey which focuses on adolescents age 13-15 years. It assesses students' attitudes, knowledge and behavior related to tobacco use and exposure to environmental tobacco smoke (ETS), as well as youth exposure to prevention activities in school curricula, community programs, and media messages aimed at

preventing and reducing youth tobacco use. Also the GYTS provides information on where tobacco products are obtained and used, as well as the effectiveness of enforcement measures.

The GYTS will attempt to address the following issues:

- Determining the level of tobacco use
- Estimating the age of initiation of cigarette use
- Estimating the levels of susceptibility to become a cigarette smoker
- Estimating the exposure to tobacco advertising
- Identifying key intervening variables, such as attitudes and beliefs on behavioral norms with regard to tobacco use among young people
- Assessing the extent to which major prevention programs are reaching school-based populations and establish the subjective opinions of those populations regarding such interventions.

III. Methods

3.1 Study design and sample

The 2000-2001 Macao GYTS was a school-based cross sectional survey which employed a two-stage cluster sample design to produce a representable sample. Students in grades six to form 3 which contained 40 or more students were included in the sampling frame. Data about schools (number of students by section/class and range of ages) were obtained from the Department of Youth and Education.

The first stage sampling frame consisted of all schools with grades six, form one, form two, or form three. The data was extracted from the Department of Youth and Education and was forwarded to CDC to draw the study sample. Schools were selected with probability proportional to school enrollment size. A total of 42 schools were selected.

The second sampling stage consisted of systematic equal probability sampling (with a random start) of classes from each school that participated in the survey. All classes in

the selected schools were included in the sampling frame. All students in the selected classes were eligible to participate in the survey. The total number of eligible classes accounted for 49 with students equal to or over 40 students per class.

3.2 The Questionnaire

The questionnaire consisted of a “core” component and an “ optional” component. The core questions allow for regional as well as international comparisons of the survey results, while the optional questions concentrate on specific issues pertaining to individual countries.

Macao used all 56 questions of the core component of the questionnaire, few questions were modified to suit the prevailing peculiarities. The optional component of the questionnaire included six questions to investigate other uses of tobacco in Macao.

A weight has been associated with each questionnaire to reflect the likelihood of sampling each student and to reduce bias by compensating for differing patterns of nonresponse. The weight used for estimation is given by: $W=W1*W2*F1*F2*F3*F4$

W1= the inverse of the probability of selecting the school.

W2= the inverse of probability of selecting the classroom within the school.

F1= a school-level nonresponse adjustment factor calculated by school size category (small, medium, large)

F2= a class adjustment factor calculated by school

F3= a student-level nonresponse adjustment factor calculated by class.

F4= a post stratification adjustment factor calculated by gender and grade.

The weighted results can be used to make important inferences concerning tobacco use risk behaviors of students in grade six, form one, form two, or form three.

Survey procedures were designed to protect the student’s privacy by allowing for anonymous and voluntary participation. The self-administered questionnaire was administered in the classroom. Students recorded their responses on an answer sheet.

3.3 Data collection

The Department of Health collected the schools number from the Department of Youth and Education for sample selection, issuing necessary letters to the randomly selected schools, updating the sample information and contacting schools. The Department of Health was responsible for selecting, training and supervising the researchers. All researchers reported back to the center coordinator on daily basis, for assistance in cases of nonresponse, logistics and job completion. The participants were assigned to schools and were responsible for the delivery and collection of all survey documentation forms, answer sheets and questionnaires.

3.4 Data analysis

These answer sheets were read and data was encoded at the US Center for Disease Control and Prevention in Atlanta. The dataset was analyzed using EPI INFO 2002, that accounted for the complex sampling design and weighing factors in the data set, to calculate standard errors and prevalence estimates. Statistical differences included in this report were determined by comparing the range of the 95% confidence intervals (95%CI) for the estimates. If the ranges for the 95%CI did not overlap then the differences were statistically significant.

IV. Results

A total of 2212 students from 38 schools completed the survey, representing a 85.6% overall response rate, and 53.5% of them were males.

4.1 Tobacco use

Table 1: Percent of students who use tobacco, Macao GYTS, 2001

Category	Ever Smoked Cigarettes, Even One or Two Puffs	Current Use			Never Smokers – Susceptible to Initiating Smoking
		Any Tobacco Product	Cigarettes	Other Tobacco Products	
Total	28.6 (± 4.0)	8.0 (± 1.9)	7.4 (± 1.9)	1.5 (± 0.5)	11.4 (± 2.3)
Sex					
Male	33.0 (± 5.5)	9.4 (± 3.0)	8.5 (± 3.0)	2.2 (± 1.0)	11.9 (± 2.9)
Female	23.4 (± 4.0)	6.2 (± 2.1)	6.0 (± 2.1)	0.8 (± 0.6)	11.0 (± 2.8)

For all students, 28.6% had ever smoked cigarette, with boys significantly higher than girls (Table 1). For current tobacco use, 8.0% used any tobacco product, 7.4% smoked cigarette and 1.5% used other tobacco product. There was no significant difference between boys and girls. For never smokers, 11.4% indicated they are likely to start smoking this year.

4.2 Schools and tobacco

Table 2: School Curriculum, Macao GYTS, 2001

Category	Percent taught dangers of smoking	Percent discussed reasons why people their age smoke
Total	79.4 (± 3.5)	22.6 (± 2.6)
Sex		
Male	75.7 (± 4.5)	21.2 (± 3.4)
Female	83.5 (± 3.7)	24.2 (± 3.4)

For all students, 79.4% were taught dangers of smoking and 22.6% of the students discussed reasons why people their age smoke (Table 2). There was no significant difference between boys and girls.

4.3 Cessation

Table 3: Cessation, Macao GYTS, 2001

Category	Current Smokers	
	Percent desire to stop	Percent tried to stop this year
Total	58.3 (± 12.6)	64.1 (± 8.3)
Sex		
Male	59.0 (± 14.9)	64.2 (± 16.3)
Female	59.8 (± 17.7)	67.2 (± 12.2)

Regarding current smokers, 58.3% of the smokers desired to stop and 64.1% tried to stop this year (Table 3). There was no significant difference between boys and girls.

4.4 Environmental Tobacco Smoke

Table 4: Environmental Tobacco Smoke, Macao GYTS, 2001

Category	Exposed to smoke from others in their home		Exposed to smoke from others in public places		Percent think smoking should be banned from public places		Definitely think smoke from others is harmful to them	
	Never Smokers	Current Smokers	Never Smokers	Current Smokers	Never Smokers	Current Smokers	Never Smokers	Current Smokers
Total	33.6 (±3.0)	45.8 (±9.8)	52.24(±3.75)	79.96(±7.74)	61.4 (±2.3)	48.4 (±7.8)	75.1 (±2.2)	56.0 (±7.2)
Sex								
Male	31.7 (±3.2)	49.7 (±12.8)	48.55(±4.43)	81.88(±10.45)	61.3 (±4.5)	54.2 (±9.8)	76.1 (±2.8)	54.7 (±12.9)
Female	35.3 (±4.2)	40.3 (±12.1)	55.79(±4.43)	78.99(±11.57)	61.9 (±3.1)	41.5 (±15.1)	74.1 (±3.4)	56.3 (±10.9)

Exposure to second hand smoke was high for all students in Macao, both at home and in public places, with 33.6% of never smokers and 45.8% of current smokers exposed to smoke from others in their home and more than 5 in 10 never smokers and almost 8 in 10 (79.96%) of current smokers exposed to smoke from others in public places. About 61.4% of never smokers and 48.4% of current smokers thought smoking should be banned from public places; and 75.1% of never smokers and 56.0% of current smokers definitely thought smoke from others is harmful to them (Table 4). For the above items, there was no significant difference between boys and girls, but never smokers were significantly less likely than current smokers to be exposed to smoking at home and in public places and never smokers were significantly more likely than current smokers to think smoking should be banned in public places and to think smoke from others is harmful to them.

4.5 Knowledge and attitudes

Table 5: Knowledge and Attitudes, Macao GYTS, 2001

Category	Think boys who smoke have more friends		Think girls who smoke have more friends		Think smoking makes boys look more attractive		Think smoking makes girls look more attractive	
	Never Smokers	Current Smokers	Never Smokers	Current Smokers	Never Smokers	Current Smokers	Never Smokers	Current Smokers
Total	11.8 (±2.2)	19.6 (±7.9)	9.3 (±1.3)	12.3 (±7.5)	10.9 (±1.7)	21.0 (±7.4)	6.4 (±1.3)	9.0 (±4.1)
Sex								
Male	10.3 (±2.7)	20.9 (±9.6)	8.8 (±1.7)	10.7 (±7.3)	13.4 (±2.4)	15.7 (±9.1)	7.9 (±1.5)	7.7 (±5.4)
Female	13.3 (±2.8)	16.9 (±10.9)	9.6 (±2.1)	15.2 (±10.3)	8.3 (±2.2)	29.0 (±9.9)	4.8 (±1.9)	11.5 (±5.9)

Regarding knowledge and attitudes, 11.8% of never smokers and 19.6% of current smokers thought boys who smoke have more friends while 9.3% of never smokers and 12.3% of current smokers thought girls who smoke have more friends (Table 5). One in ten never smokers and 21.0% of current smokers thought smoking makes boys look more attractive and 6.4% of never smokers and 9.0% of current smokers thought smoking makes girls look more attractive. Current smokers were significantly more likely than never smokers to think smoking makes boys and girls look more attractive, especially the girls who had never smoked. And girl never smokers were more likely to think that smoking makes boys and girls look more attractive.

4.6 Media and advertising

Table 6: Media and Advertising Macao GYTS, 2001

Category	Percent Saw Anti-Smoking Media Messages	Percent Saw Pro-Tobacco Messages in Newspapers and Magazines		Percent Who Had Object With a Cigarette Brand Logo On It		Percent Offered * Free Cigarettes by a Tobacco Company Representative	
		Never Smokers	Current Smokers	Never Smokers	Current Smokers	Never Smokers	Current Smokers
Total	84.3 (±2.2)	57.8 (±3.2)	62.2 (±10.6)	14.3 (±2.3)	28.9 (±8.2)	4.5 (±0.9)	22.0 (±8.5)
Sex							
Male	83.5 (±2.3)	57.1 (±3.4)	61.0 (±12.2)	19.0 (±3.3)	27.3 (±8.2)	6.4 (±2.0)	18.5 (±8.4)
Female	85.2 (±3.0)	59.0 (±4.5)	63.8 (±13.9)	9.6 (±2.2)	32.7 (±13.5)	2.5 (±0.9)	25.6 (±13.8)

Over 8 in 10 students saw anti-smoking media messages, 57.8% of never smokers and 62.2% current smokers saw pro-tobacco messages in newspapers and magazines; 14.3% of never smokers and 28.9% of current smokers who had object with a cigarette brand logo on it; 4.5% of never smokers and 22.0% of current smokers were offered “free” cigarettes by a tobacco company representative (Table 6). Current smokers were significantly more likely than never smokers to have an object with a cigarette brand logo on it and to have been offered free cigarettes by a tobacco company representative.

4.7 Access and Availability

Table7: Access and Availability, Macao GYTS, 2001

Category	Percent Current Smokers who Usually Smoke at Home	Percent Current Smokers who Purchased Cigarettes in a Store	Percent Current Smokers Who Bought Cigarettes in a Store Who Were Not Refused Because of Their Age
Total	8.5 (±4.3)	59.8 (±9.7)	94.2 (±6.3)
Sex			
Male	9.9 (±6.4)	60.7 (±13.7)	92.6 (±7.1)
Female	6.3 (±9.1)	57.9 (±9.9)	96.5 (±7.2)

For access and availability, 8.5% of current smokers usually smoked at home; 59.8% of current smokers purchased cigarettes in a store; and 94.2% bought cigarettes in a store who were not refused because of their age (Table 7).

V. Discussion

5.1 Tobacco use

The results in our study showed that over one-fourth of ever smokers, first tried their cigarettes in adolescents and the likelihood of the burden of tobacco use will increase in the near future where 11.9% of male never smokers and 11.0% of female never smokers are susceptible to initiating smoking, with girls never smokers increasing fast in the near future. Other tobacco products is not the trend in Macao as only around 2% currently use some other form of tobacco.

5.2 School curriculum

Approximately one in eight students were taught about the dangers of smoking but less than one-third of them discussed the reasons that makes young people their age smoke. This lack of teaching the health effects of smoking creates a big gap in the scope and nature of health information and instructions included in the school tobacco use curriculum.

5.3 Cessation

The data indicates the need to establish counseling services and smoking cessation programs to help young smokers quit smoking as over half of current smokers desire to stop smoking and have actually tried to stop.

5.4 Environmental Tobacco Use

Young people who were exposed to tobacco smoke is high, almost 4 in 10 students live in homes and 5 in 10 are in public place where other smoke in their presence, 5 in 10 have one or more parents who smoke.

It is said in the literature that an environment conducive to smoking will encourage young people to smoke, especially if their parents and peers smoke. In addition to that ETS is a class of a carcinogen like asbestos, benzene and radon and claims about three thousands deaths each year in the United States of America. Unfortunately the harmful of ETS are

not well known by current young smokers in Macao where around half of them (56.0%) think that smoke from others is harmful to them. Although we have legislation, still there is the urgent need to implement legislation efficiently to ban smoking in public places with the majority of both never smokers (61.4%) and current smokers (48.4%) approving of such measures.

5.5 Knowledge and attitudes

There is a gap that current smokers were less likely than never smokers to think smoking from others is harmful to them. This might lead to the conclusion that a large number of young people start smoking due to their ignorance of its consequences. Another important finding is that more current smokers especially girls think smoking made them more attractive than never smokers. Therefore, there is an urgent need intervention to remove these misleading and false images of smokers that tobacco industry used to promote it.

5.6 Exposure to media and advertising

The tobacco industry spent a huge budget annually to promote their product through advertising. The results of this study provide clear evidence that the majority of young people are exposed to pro-tobacco messages in media. Almost one fourth of current smokers are offered free cigarettes by a tobacco company representative and had an object with a cigarette brand logo on it.

5.7 Access and availability

It is amazing that young people have easy access to cigarettes which encourage those young people to smoke, Over 9 in 10 of young smokers were not refused purchase of cigarettes in a store because of their age. With the evidence of literature, parental guidance and objection to smoking is a very key factor to prevent young people aged 13-15 years from smoking.

VI. Recommendations

One major problem in Macao that cannot be ignored is the increased use of cigarettes by young people, which will have long-term negative effects to the health care system in Macao. A small decline in smoking prevalence among youth could have a significant beneficial public health impact in reducing the number of adult smokers and consequently reducing morbidity and mortality caused by smoking related diseases in the future. Therefore, stronger intervention programs for community as well as adolescents and school-aged children should be established:

- Reducing exposure to environmental tobacco smoke through stronger anti-smoking legislation, there is an urgent need to extending the ban on smoking to more public places;
- Reducing youth access to tobacco products through enforcing the legislation effectively for banning sale of tobacco products to persons under age 18, increasing tobacco taxes, and prohibiting the sale of cigarettes in vending machines, mail order or the internet;
- Reducing adolescents exposure to misleading and faulty tobacco industry advertisements through banning tobacco use advertisement and all forms of tobacco promotion, such as cultural events, and offering cigarettes to minors.
- Strengthening information, education and communication campaigns on the health effects of tobacco in all settings, e.g. schools, community and workplaces.
- Strengthening smoking cessation program in schools and making cessation programs more accessible to everyone who wish to quit.
- Continuing monitoring tobacco use and other risk behaviors in youth and among the population.

It is recommended that this study should be conducted at regular time intervals to become a surveillance system and function as an evaluation tool for current and future smoking prevention programs and reach the requirement of Framework Convention on Tobacco Control (FCTC).

Contributors

The US CDC designed and analyzed the data of the study. Dr. Chan Tan Mui, coordinator of this study, organizing, interpreting of the data and writing up the report with the contributions from Dr. Charles W. Warren, Veronica Lea, Mark Tabladillo and others. Dr. Alice Maia, contributed in early stage organizing. Ms Ho Ioc Cheng, public health nurse, assistant coordinator of tobacco or health, translated the questionnaire to Portuguese version and supervised the data collection. Mr Choi Kuan Wa, contributed to the data input. Nurses of health centers contributed to questionnaire distribution and collection.

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